Green Developments in Pollution Prevention and Military Packaging

presented by:
Trey Kunkel (Speaker), John Bendick, Brian Kettl, and Blair Collins
Agenda

- Who We Are and What We Do
- Waste Studies
  - USS Nimitz
  - USS Porter
- Waste Study Initiatives
- Procurement Data
  - Analysis
- Data Initiatives
- Green Packaging
  - Materials
  - Next Steps
- Wrap-Up
Asset Protection
(Packaging, Handling, Storage and Transportation (PHS&T))

- Technical Warrant, Navy PMS/PMA Logistics Support, Provisioning, Packaging Engineering, Reusable Container Design, Shelf Life, Care of Supplies in Storage (COSIS), Technical Assistance Repairing Processing (TARP), Wood Packaging Material (WPM), Automated Information Technology (AIT)/Radio Frequency Identification (RFID)

Hazardous Material Control & Management (HMC&M)

- Ashore: Regional Hazardous Inventory Control System (RHICS), Enterprise Resource Program (ERP) Hazardous Enterprise Data Management Office (HEDMO), DLA HMIRS

Environmental and Pollution Prevention (P2) Programs

- NAVSUP Policy Support, Green Procurement, Waste Reduction Afloat Protects the Sea (WRAPS), Plastics Removal in Marine Environment (PRIME), Ozone Depleting Substances (ODS), National Emissions Standards for Hazardous Air Pollutants (NESHAP)
The Navy is not Walmart....
Our logistics systems are very complicated
- Many different locations, conditions, timeframes, and products
- No true closed-loops

This is just the end state. The process to get to this point is 100x larger.
We can identify what’s going in and what’s coming out.

Impact must be made upfront, before entering the “Black Box”

Decrease Non-Green choices

Specs and Standards

Contract Language

Navy Logistics

Waste Data

Purchasing Data
WASTE STUDIES
Waste disposal is a challenge at sea
- Strict international and domestic laws regarding discharge

We develop profiles by measuring all waste created over 48-hour timeframes

This information helps to identify project targets and waste management best practices
Aircraft carrier with approximately 4,300 onboard crew
All waste recorded for 48 hours

<table>
<thead>
<tr>
<th>Weight (lbs)</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Total</th>
<th>24-Hour Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16,713</td>
<td>15,334</td>
<td>32,048</td>
<td>16,024</td>
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</table>

*USS Nimitz (CVN-68)*
Destroyer with approximately 275 onboard crew
All waste recorded for 72 hours

<table>
<thead>
<tr>
<th>Weight (lbs)</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Total</th>
<th>24-Hour Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>631</td>
<td>486</td>
<td>950</td>
<td>2,067</td>
<td>689</td>
</tr>
</tbody>
</table>

- Cardboard, 69 lbs, 10%
- Aluminum, 36 lbs, 5%
- Others, 44 lbs, 6%
- Plastic, 59 lbs, 8%
- Paper, 155 lbs, 21%
- Metal, 39 lbs, 5%
- Food, 330 lbs, 45%
WASTE STUDY INITIATIVES
Problem/ Goal Statement

Problem: MARPOL Annex V and US Law prohibit plastic disposal at sea. Plastic waste is cumbersome to process and must be stored for off-load to shore.

Goal: Develop a high strength, lightweight, waterproof, marine biodegradable, and non-plastic waste disposal bag to significantly decrease the volume of plastic waste that must be processed and stored aboard.

Business Impact

- Recent waste studies indicate that plastic trash bags can represent up to 30% by weight of the total plastic waste stream.
- Reducing plastic waste will decrease processing time requirements and free up valuable space normally used to store plastic awaiting offload.

SBI R Phase I

- Northern Technologies
  - Soy based paper coating to improve water resistance and maintain biodegradable properties
  - Successful coated samples developed
  - Phase II conditional on cost and commercialization estimates.

- KaZaK
  - Super hydrophobic nano-altered glass material
  - Coating capability still at R&D phase, not robust
  - Not a candidate for Phase II

Shipboard Plastic Waste Content

- Bags, 19 lbs, 31%
- Food Pkg., 18.5 lbs, 30%
- Bottles, 9 lbs, 15%
- Others, 15 lbs, 24%
Water bottle study
- Investigated use of reusable water bottles aboard USS Churchill
- 6-month effort to examine ship’s store purchases

- Liked and used by 77% of the crew
- 20% fewer water bottles purchased than control
PROCUREMENT DATA
Numerous suppliers and databases used by the Navy
- GSA, DLA, Combat Logistics Force Database
- Using all these sources to create order history of frequently purchased items by count and cost

<table>
<thead>
<tr>
<th>DATA TITLE</th>
<th>SOURCE AGENCY</th>
<th>INFORMATION SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>HULL</td>
<td>NAVY</td>
<td>High Usage Load List – items that are used in large quantities and are available via Military Sea Lift Command restock during a deployment</td>
</tr>
<tr>
<td>Never-Out List</td>
<td>NAVY</td>
<td>List of common use items that always need to be available onboard the ship. Reorder happens before material is exhausted.</td>
</tr>
<tr>
<td>CLF Carrier Requisition</td>
<td>NAVY</td>
<td>Comprehensive requisition data from all aircraft carriers (CVN) from the 2008-2009 timeframe</td>
</tr>
<tr>
<td>FPDS Navy Data</td>
<td>GSA</td>
<td>Navy Top 300 Global Supply purchases by dollar amount 2010</td>
</tr>
<tr>
<td>Navy Orders</td>
<td>DLA</td>
<td>Navy Top 1000 DLA purchases by total dollar amount spent 2010</td>
</tr>
</tbody>
</table>
Final product is a list of high usage items with their corresponding environmental characteristics.

This wealth of information can then be parsed into a number of useful tools and lists.
DATA INITIATIVES
Plastics Removal in Marine Environment (PRIME)

- Items are packaged in biodegradable packaging to facilitate waste processing at sea
- ~850 items already in the program

By analyzing the data, we have been able to create purchasing recommendations to maximize the use of these items

Also identified 168 additional items with high chance of success for inclusion in the program
Populate With
- High Demand Green Items
- Green Alternatives to High Demand Brown Items
- Suggestions/Training Aides to Fill in the Gaps

Categories (16-24 Products/Category)
- Cleaning
- Galley/Cooking
- Office
- Painting
- Housing
- Tools

Targeted Audience
- Purchase Card Holders
- Contracting Officers

Tomorrow at 1pm, John Bendick will be presenting additional details on how we developed the Green Item Catalog
GREEN PACKAGING
Green Packaging

**WHY PACKAGING?**

- It touches every product
  - Everything then has a sustainable factor

- Several **Sustainable** elements apply
  - Recovered Material
  - Bio-based products
  - Environmentally Preferable Products

- Great target candidates for **Sustainable** materials
  - Plastics
  - Foams
  - Aluminum Foils
  - Kraft Paper
  - Tapes and Adhesives
  - Fiberboard Boxes, etc....
There are several commonly used packaging materials that are excellent candidates for Greening:

- Polyethylene Sheets: A-A-3174
- Barrier Materials: MIL-PRF-121
- Aluminum Foil: QQ-A-1876
- Chemical Neutral Paper: MIL-DTL-17667
- Tapes and Adhesives: Varies

KEY IDEA IS THAT GREEN ALTERNATIVES DON’T HAVE TO BE MORE EXPENSIVE THAN THEIR COUNTERPARTS!
Work with material suppliers about delivering Green Materials
- They may already have products that are Green but are not covered by the existing contract or NSN

Begin revision and incorporation of Green Language into various material specifications
- Need to determine what is reasonable to expect and to request

Work with DLA and GSA to make sure Navy activities can order Green Packaging products and materials
- New designators or identifiers

GREEN PACKAGING MUST NOT COMPROMISE PROTECTIVE CAPABILITY
Data acquisition is not easy but crucial to ongoing Green initiatives
- Requires joint service effort
- We have identified what goes in and what comes out of the shipboard environment

Always on the lookout for more data, success stories, and best practices

Let us know your thoughts on Green initiatives and new technologies that may benefit the Navy
THANK YOU!

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Now go forth and be GREEN.